

Attachment 1

KEY PERFORMANCE PARAMETERS

Key Performance Parameter	Threshold and Objective
Integration (Wear/Fit/Comfort)	<p>The escape system and interfaces, including components and support system(s), must functionally and physically integrate with existing life support equipment and be capable of correct human interfaces for all personnel associated with the system. These interfaces will include but not be limited to: life support, human characteristics, anthropometry, biomedical factors, workload reduction, cognitive capabilities and limitations, job facilitation, performance aiding, control and display integration, perceptual cueing, etc. This includes operators, maintainers, sustainers, trainers, and other support personnel. The T-38 cockpits (forward and aft), including the escape system, must be capable of being safely and efficiently operated by aircrew members JPATS cases 1-6, and pilot nude weight range of 103-245 lbs. (Threshold) (Key Performance Parameter) JPATS cases 1-7 and pilot nude weight range of 103-245 lbs should be accommodated as a goal. (Objective)</p>
Head Protection	<p>The integrated escape system/life support equipment shall protect the member's head and neck from impacts and penetrations associated with basic aircraft maneuvers as well as during operation of the ejection seat. (Threshold) This protection must be maintained through speeds compatible with the ejection seat capabilities (Threshold) and weights must be within safe human design limits when fully assembled with internal and external components. Head protection must be stable, within center of gravity standards, comfortable to the user, and not cause neck injury, muscle fatigue/strain during normal or emergency use. (Threshold) (Key Performance Parameter)</p>
Flotation Protection	<p>The escape system must provide sufficient volume/space to store the survival and flotation equipment. The escape system must provide the crew controls to select automatic deployment of the survival kit and life raft. The system must not damage the survival and flotation equipment during ejection or on deployment. Equipment must prevent dragging through water by the parachute and operate: (1) manually with either gloved hand, and (2) automatically without any action required by the user. (Threshold) (Key Performance Parameter)</p>
Ejection	<p>Ejection systems/components should increase the stability of the seat at high speed, expand/increase aircrew safety during bailout events, and expand the ejection envelope to more closely coincide with the</p>

	<p>operational envelope of the T-38 aircraft. Ejection systems/components must match existing life support equipment components. Escape system performance must provide for safe ejection for aircrew members from JPATS cases 1-6, and pilot nude weight range of 103-245 lbs. The maximum functional ejection speed capability must be 550 KEAS (Threshold) (Key Performance Parameter), with a goal to permit functional ejection up to 600 KEAS (Objective). The escape system must provide for safe ejection at zero altitude above ground level and zero knots equivalent air speed. The escape system will incorporate a seat mounted parachute system and an interseat system. The interseat system will provide a means for both pilots to eject with the pulling of a single ejection handle and will include seat sequencing for ejection. The escape system must be optimized for performance in aircraft out of control ejections, aircraft flight traffic pattern altitudes/airspeeds/configurations, and high sink rate conditions. Recovery parachute deployment will be possible before seat/man separation. (Threshold) (Key Performance Parameter) JPATS cases 1-7 and pilot nude weight range of 103-245 lbs should be accommodated. The ejection seat shall be instrumented with sensors adequate to collect data to determine the performance of the ejection system and to determine if the system performs within human tolerance criteria. These sensors include but are not limited to seat accelerometers, seat pan accelerations, seat back accelerations, and seat cushion accelerations. (Objective)</p>
Restrain/Deceleration/Descent	<p>The escape system must provide active restraint for the occupant's legs. System shall successfully protect both arms (desired) and both legs (required) for the ejection sequence up to seat/man separation for the full performance envelope of the ejection system. System shall integrate with the operation of the aircraft without human performance degradation and shall be capable of retrieving limbs from all normal limb positions during aircraft operations. Provisions shall be incorporated for seat and crewmember stability during free flight, including the period from rocket ignition through recovery parachute deployment. (Threshold) (Key Performance Parameter)</p>